AMENDED SET OF CLAIMS

Please amend the claims as follows:

1. (**Currently Amended**) A method for treating an implant surface intended for implantation into bone tissue, said method comprising:

providing fluorine and/or fluoride on at least a part of the implant surface, and

providing a microroughness comprising pores having a pore diameter of ~~< 1 µm~~ ≤ 1 µm and a pore depth of ~~< 500 nm~~ ≤ 500 nm, wherein the implant surface is a metallic implant surface, by treating the metallic implant surface with an aqueous solution of hydrofluoric acid, resulting in an etching process, wherein the concentration of the hydrofluoric acid is less than 0.5 M, and wherein the metallic implant surface is treated for an etching period of up to 180 seconds at room temperature, said etching period being measured from the formation of the first bubble of H_2 (g) at the implant surface.

2-27. (Cancelled).

28. (Previously Presented) The method according to claim 1, wherein the pore diameter is within the range of 50 nm to 1µm and the pore depth is within the range of 50 to 500 nm.

29. (Previously Presented) The method according to claim 1, wherein a root-mean-square roughness (R_q and/or S_q) of ≤ 250 nm is provided.

30. (Previously Presented) The method according to claim 1, wherein an average atomic concentration of at least 0.2 at% fluorine and/or fluoride is provided.

31. (Previously Presented) The method according to claim 30, wherein the average atomic concentration of fluorine and/or fluoride is within the range of 0.4-7 at%.

32. (**Cancelled**).

33. (**Currently Amended**) The method according to claim 1 ~~claim 32~~, wherein the concentration of the hydrofluoric acid is 0.1 M and the etching period is up to 60 sec at room temperature.

34. (Previously Presented) The method according to claim 1, further comprising providing a macroroughness on the implant surface prior to providing the fluorine and/or fluoride and prior to providing the microroughness.

35. (Previously Presented) The method according to claim 34, wherein the macroroughness is provided by blasting the implant surface.

36. (Previously Presented) The method according to claim 1, wherein said metallic implant surface is made of commercially pure titanium or an alloy of titanium.

37. (Previously Presented) An implant for implantation into bone tissue having an implant surface at least part of which has been treated with a method according to claim 1.

38. (**Currently Amended**) An implant for implantation into bone tissue having an implant surface, wherein

the implant surface is a metallic implant surface,

there is an oxide layer on at least part of the implant surface,

said oxide layer having ~~comprises~~ fluorine and/or fluoride incorporated therein, and

at least a part of the implant surface comprises a microroughness which comprise pores having a diameter of $\leq$ 1 μm and a pore depth of $\leq$ 500 nm, wherein the microroughness comprises peaks having a peak width, at half the pore depth, of from 15 to 150% of the pore diameter.

39. (Previously Presented) The implant according to claim 38, wherein the pore diameter is within the range of 50 nm to 1 μm and the pore depth is within the range of 50 to 500 nm.

40. (Previously Presented) The implant according to claim 38, wherein the microroughness has a root-mean-square roughness (R_q and/or S_q) of $\leq$ 250 nm.

41. (Previously Presented) The implant according to claim 38, wherein at least a part of the implant surface has an average atomic concentration of at least 0.2 at% fluorine and/or fluoride.

42. (Previously Presented) The implant according to claim 41, wherein the average atomic concentration of fluorine and/or fluoride is within the range of 0.4-7 at%.

43. (Previously Presented) The implant according to claim 38, wherein the implant surface further comprises a macroroughness.

44. (Previously Presented) The implant according to claim 38, wherein said implant is a metallic implant.

45. (Previously Presented) The implant according to claim 44, wherein said metallic implant surface is made of commercially pure titanium or an alloy of titanium.

46. (Previously Presented) The implant according to claim 38, wherein the implant is a dental implant.

47. (Previously Presented) The implant according to claim 38, wherein the implant is an orthopaedic implant.